

U.S. Serial No. 10/678,468
Reply to Office Action of: October 4, 2006
Family Number: P2002J112 US2

Page 4

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A functional fluid comprising:
 - a) a base stock or base oil, said base stock or base oil having the properties of:
 - (i) a viscosity index (VI) of about 130 or greater;
 - (ii) a pour point of about -103.5°C or lower;
 - (iii) a ratio of measured-to-theoretical low-temperature viscosity equal to about 1.2 or less, at a temperature of about -30C or lower, where the measured viscosity is cold-crank simulator viscosity and where theoretical viscosity is calculated at the same temperature using the Walther-MacCoul equation wherein said base stock or base oil is not a Group IV base stock or base oil; and
 - b) at least one additive.
2. (Currently amended) A functional fluid comprising:
 - a) at least one base stock or base oil wherein said base stock or base oil has a VI of at least 130 produced a pour point of about -35°C or lower by a process which comprises:
 - (i) hydrotreating a feedstock having a wax content of at least about 60 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;
 - (ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;
 - (iii) hydrodewaxing the liquid product with a dewaxing catalyst which is at least one of ZSM-48, ZSM-57, ZSM-23, ZSM-22, ZSM-35, ferrierite, ECR-42, ITQ-13, MCM-71, MCM-68, beta, fluorided alumina, silica-

U.S. Serial No. 10/678,468
Reply to Office Action of: October 4, 2006
Family Number: P2002J112 US2

Page 5

alumina or fluorided silica alumina under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or Group 10 noble metal; and

b) at least one additive.

3. (Currently amended) A functional fluid comprising:

a) at least one base stock or base oil wherein said base stock has a VI of at least 130 a pour point of about -35°C or lower produced by a process which comprises:

- (i) hydrotreating a lubricating oil feedstock having a wax content of at least about 50 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock to produce a hydrotreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;
- (ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;
- (iii) hydrodewaxing the liquid product with a dewaxing catalyst which is at least one of ZSM-22, ZSM-23, ZSM-35, ferrierite, ZSM-48, ZSM-57, ECR-42, ITQ-13, MCM-68, MCM-71, beta, fluorided alumina, silica-alumina or fluorided silica-alumina under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or 10 noble metal;
- (iv) hydrofinishing the product from step (3) with a mesoporous hydrofinishing catalyst from the M41S family under hydrofinishing conditions; and

b) at least one additive.

4. (Currently amended) A functional fluid comprising:

U.S. Serial No. 10/678,468
Reply to Office Action of: October 4, 2006
Family Number: P2002J112 US2

Page 6

a) at least one base stock wherein said base stock has a VI of at least 130 a pour point of about -35°C or lower produced by a process which comprises:

- (i) hydrotreating a lubricating oil feedstock having a wax content of at least about 60 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock to produce a hydrotrreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;
- (ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;
- (iii) hydrodewaxing the liquid product with a dewaxing catalyst which is ZSM-48 under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or 10 noble metal;
- (iv) Optionally, hydrofinishing the product from step (3) with MCM-41 under hydrofinishing conditions; and

b) at least one additive.

5. (Original) The functional fluid as in claim 2, 3 or 4 wherein said feedstock is a synthetic gas to liquid feedstock.

6. (Original) The functional fluid as in claims 2, 3 or 4 wherein said feedstock is made by a Fischer-Tropsch process.

7. (Original) The functional fluid having improved Brookfield viscosity at -20F or lower comprising the base stock or base oil of claims 1, 2, 3 or 4 and at least one performance enhancing additive.

8. (Original) The functional fluid having improved Brookfield viscosity at -20F or lower comprising the base stock or base oil of claims 1, 2, 3 or 4 and at least one

U.S. Serial No. 10/678,468
Reply to Office Action of: October 4, 2006
Family Number: P2002J112 US2

Page 7

performance enhancing additive, where said performance enhancing additive is not a viscosity index improver.

9. (Original) A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 40000 cP at -20F.

10. (Original) A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 28000 cP at -20F.

11. (Original) A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 6500 cP at -20F.

12. (Original) A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 6200 cP at -20F

13. (Currently amended) AThe method of making a functional fluid having improved Brookfield viscosity at -20F or lower comprising incorporating a base stock or base oil having the properties of

- (a) a viscosity index (VI) of 130 or greater,
- (b) a pour point of -103.5°C or lower,
- (c) a ratio of measured-to-theoretical low-temperature viscosity equal to 1.2 or less, at a temperature of -30C or lower, where the measured viscosity is cold-crank simulator viscosity and where theoretical viscosity is calculated at the same temperature using the Walther-MacCull equation.

U.S. Serial No. 10/678,468
Reply to Office Action of: October 4, 2006
Family Number: P2002J112 US2

Page 8

wherein said base stock or base oil is not a Group IV base stock or base oil.

14. (Original) A method of improving the Brookfield viscosity of a base stock comprising incorporating said base stock or base oil of any one of the claims 1, 2, 3 or 4.

15. (Original) A method of improving the Brookfield viscosity of a functional fluid comprising incorporating a base stock or base oil of any one of the claims 1, 2, 3 or 4.

16. (Original) A method of improving the Brookfield viscosity of a hydraulic oil comprising incorporating a base stock or base oil of any one of the claims 1, 2, 3 or 4.

17. (Original) A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 40000 cP at -20F.

18. (Original) A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 28000 cP at -20F.

19. (Original) A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 6500 cP at -20F.

20. (Original) A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 6200 cP at -20F

U.S. Serial No. 10/678,468
Reply to Office Action of: October 4, 2006
Family Number: P2002J112 US2

Page 9

21. (Currently amended) The functional fluid of claim 1 Any one of the preceding claims wherein the functional fluid is a hydraulic oil.